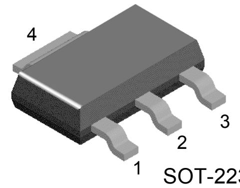
FAIRCHILD
SEMICONDUCTOR®

April 2005

NZT660/NZT660A
PNP Low Saturation Transistor

- These devices are designed with high current gain and low saturation voltage with collector currents up to 3A continuous.



SOT-223

1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings* T_a=25°C unless otherwise noted

Symbol	Parameter	NZT660	NZT660A	Units
V_{CEO}	Collector-Emitter Voltage	60	60	V
V_{CBO}	Collector-Base Voltage	80	60	V
V_{EBO}	Emitter-Base Voltage	5	5	V
I_C	Collector Current - Continuous	3	3	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	- 55 ~ +150	- 55 ~ +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

1) These ratings are based on a maximum junction temperature of 150°C.

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10mA	60			V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100µA NZT660 NZT660A	80 60			V V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100µA	5			V
I_{CBO}	Collector-Base Cutoff Current	V_{CB} = 30V V_{CB} = 30V, T_A = 100°C			100 10	nA µA
I_{EBO}	Emitter-Base Cutoff Current	V_{EB} = 4V			100	nA
On Characteristics *						
h_{FE}	DC Current Gain	I_C = 100mA, V_{CE} = 2V I_C = 500mA, V_{CE} = 2V NZT660 NZT660A I_C = 1A, V_{CE} = 2V I_C = 3A, V_{CE} = 2V	70 100 250 80 25		 300 550	

Electrical Characteristics T_a = 25°C unless otherwise noted (Continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 100mA I_C = 3A, I_B = 300mA NZT660 NZT660A			300 550 500	mV mV mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1A, I_B = 100mA			1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 1A, V_{CE} = 2V			1	V
Small Signal Characteristics						
C_{obo}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1MHz			45	pF
f_T	Transition Frequency	I_C = 100mA, V_{CE} = 5V, f = 100MHz	75			MHz

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	NZT660/NZT660A	Units
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	°C/W

Typical Performance Characteristics

Figure 1. Base-Emitter Saturation Voltage vs Collector Current

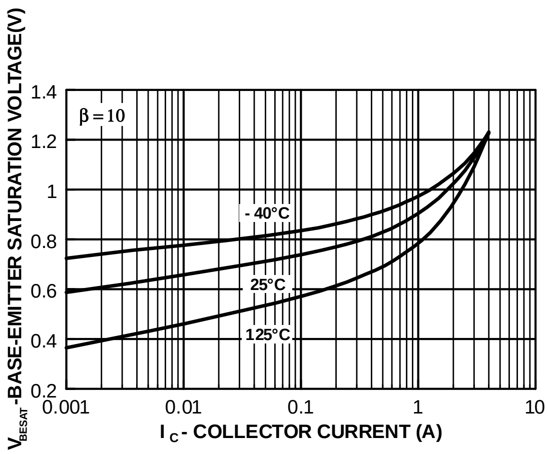


Figure 2. Base-Emitter On Voltage vs Collector Current

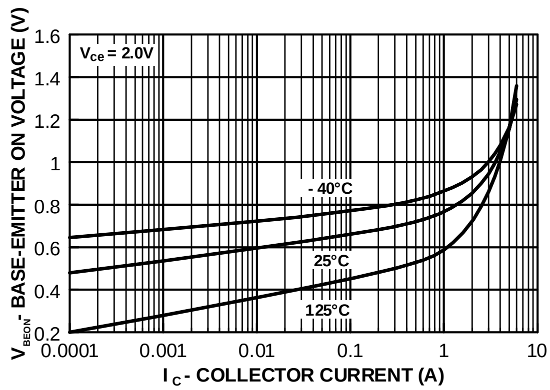


Figure 3. Collector-Emitter Saturation Voltage vs Collector Current

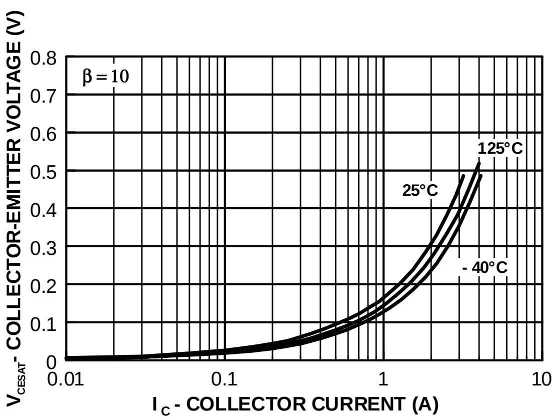


Figure 4. Input/Output Capacitance vs Reverse Bias Voltage

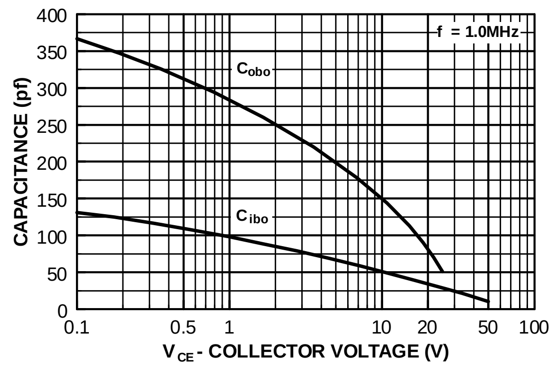
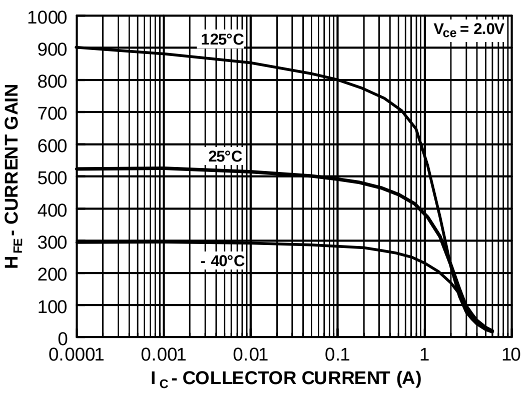
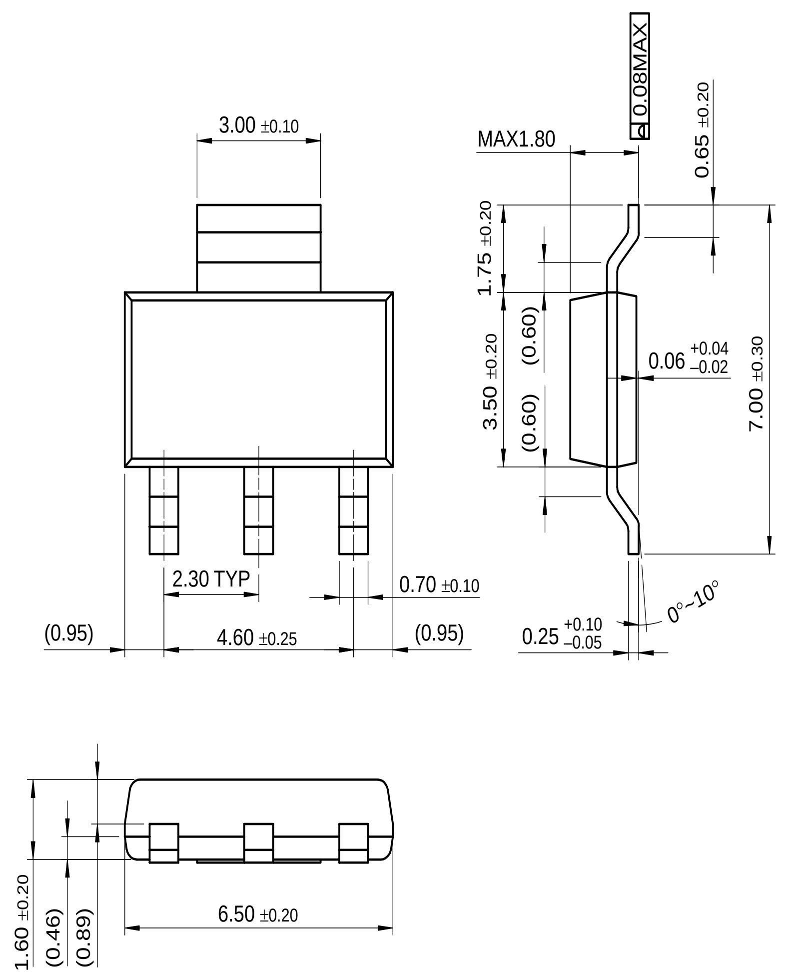


Figure 5. Current Gain vs Collector Current



Mechanical Dimensions

SOT-223



Dimensions in Millimeters

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